UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,387	04/19/2001	Juan G. Gonzalez	2925-0495P	7292

30594	7590	04/14/2005		EXAMINER

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 8910
RESTON, VA 20195

KIM, KEVIN

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/837,387	GONZALEZ ET AL.
	Examiner	**Art Unit**	
	Kevin Y Kim	2634	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 December 2004</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-13</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,5 and 9-12</u> is/are rejected.

7)☒ Claim(s) <u>4,6-8,13</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
    application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed on December 7, 2004 have been fully considered but they are

not persuasive.

Applicant amended the rejected claims such that now it include "generating a channel

estimate <u>over a time window of predetermined width</u>" and asserts that the Piirainen patent fails

to teach that underlined limitation.   However, the prior art describes generating the channel

estimate comprising 5 taps, see col.3, lines 51-54, thus meeting the limitation of "generating a

channel estimate over a time window of predetermined width."   Therefore, the rejection of the

previous Office actions stands.

2.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

Claim Rejections - 35 USC § 102

3.   Claims 1-3,5,9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Piirainen

(US 6,748,031, previously cited).

Claims 1 and 2.

Piirainen discloses a method of estimating a communication channel (see Fig.2),

comprising;

"determining at least first and second confidence levels that a transmitted

data symbol has respective first and second values based on a received data

symbol corresponding to the transmitted data symbol," see col. 3, line 66 ~ col.4, line4

describing the confidence levels or probabilities of a received symbol y having one of a plurality

of values x, and

"generating a channel estimate based on the first and second confidence

levels over a time window of predetermined width." See col.4, lines 32-49 describing the

calculation of a channel estimate using the probabilities of a received symbol y having one of a

plurality of values x. And see col.3, lines 51-54.

Claim 3.

The calculation of a channel estimate is based on the confidence levels of the received

symbols since it used the mean of the probabilities/confidence levels as well as the received data

symbol y_k. See the equation at col.4, lines 35-40.

Claim 5.

Referring to Fig.2, Piirainen discloses a method of making a channel estimate,

comprising:

"generating a confidence factor according to a confidence function and a

received data symbol, the confidence factor representing a confidence level that a

transmitted data symbol corresponding to the received data symbol has a

particular symbol value," see col. 3, line 66 ~ col.4, line 4 describing probabilities of a received

symbol y having one of a plurality of values x, i.e., the confidence factor according to "a

confidence function," i.e., a Viterbi detecting function, see col.3, line 66 ~ col.4, line 4 and

"generating a channel estimate based on the confidence factor and the

received data symbol over a time window of predetermined width."   See col.4, lines 32-49

describing the calculation of a channel estimate using the probabilities of a received symbol y

having one of a plurality of values x. And see col.3, lines 51-54.

Claim 9.

Referring to Fig.2, Piirainen discloses a method of making a channel estimate,

comprising:

"determining a strength indicator based on a received data symbol

corresponding to a transmitted data symbol, a value of the strength indicator

indicating a likelihood that the transmitted data symbol is a particular value," see col. 3, line 66 ~

col.4, line 4 describing probabilities of a received symbol y having one of a plurality of values x,

i.e., "a strength indicator" of the received symbol, and

"generating a channel estimate based on the confidence factor and the

received data symbol over a time window of predetermined width l."   See col.4, lines 32-49

describing the calculation of a channel estimate using the probabilities of a received symbol y

having one of a plurality of values x.   And see col.3, lines 51-54.

Claims 10 and 11.

Piirainen teaches a binary modulation, one of which is the bi-phase shift keying, where a

transmitted symbol obtains the values of 1 or −1. See col. 4, lines 22-24. Thus, the strength

indicator, i.e., a numeral representation of probability, approaches a value of 1 the greater the

likelihood that the transmitted data symbol was 1 and approaches a value of -1 the greater the

likelihood that the transmitted data symbol was -1.

Claim 12.

The claim calls for performing the probability determinations and the strength indicator

determination according to a predetermined function. Piirainen teaches describing computing

the probabilities according to a Viterbi detecting function. See col.3, line 66 ~ col.4, line 4

Allowable Subject Matter

4.   Claims 4,6-8 and 13 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

Conclusion

3.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kvk

CHIEH M. FAN
PRIMARY EXAMINER